Space Weather Forecast

Issued on Wednesday, 04 October 2023 at 01:14 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Moderate-flares throughout. Slight chance of isolated Minor Storm interval today (4th Oct).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Low, with only low level Common class flares. There are currently eight numbered sunspot regions on the visible disc, the largest being AR3452. However, smaller AR3450 generated the majority of the frequent common class flares, despite showing a slight decay in area. Most of the numbered regions on the disc showed only small changes, although AR3453 showed the greatest development, with a slight growth in its intermediate spots.Two new regions have recently developed, one in the northwest and the other in the southwest, both small, weak and simple regions.

There were no Earth-directed CMEs observed.

Solar Wind / Geomagnetic Activity: Solar wind speedswere at background levels, generally between340-380 km/s. The strength of the magnetic field was predominantly weak, but increased through the evening to reach moderate levels. The important north-south component, fluctuated weakly between north and south. Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels, with no Solar Radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate with a chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: There are currently no Earth-directed CMEs expected. Today (4th Oct), a connection to the fast wind from a small equatorial coronal hole is expected. Any enhancement is likely to be weak, with background wind speeds possibly increasing to slightly elevated levels of 450-500km/s. Later in the period the solar wind will return to background levels, as any influence from the coronal hole feature fades. Mainly Quiet geomagnetic activity is expected with isolated Unsettled spells. Any fast wind arrival has the potential to bring a spell of Unsettled to Active, with a slight chance of Minor Storm intervals, most likely today (4th Oct).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at Background levels, with no Solar Radiation storms expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	40	40
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	2	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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